

CLAIMS:

1. A mechanism for synchronizing the movement of first and second pivotable handlebars of an exercise apparatus, the mechanism comprising first and second pulleys mounted at opposed end portions of a shaft that is mounted for rotation about a longitudinal axis thereof, said first and second pulleys being respectively adapted to receive rotational drive from the first and second handlebars, first and second one-way clutches for respectively transmitting a torque from said first and second pulleys to said shaft in one direction, while allowing said first and second pulleys to rotate freely on said shaft when driven in an opposite direction, and a drive transmission between said first and second pulleys to communicate a movement imparted to one of said first and second pulleys to the other pulley but in an opposite direction, thereby causing the handlebars to pivot in an inverted synchronized fashion.
2. A synchronous mechanism as defined in claim 1, wherein said drive transmission includes first and second cables connected in parallel between said first and second pulleys.
3. A synchronous mechanism as defined in claim 1, wherein each of said first and second one-way clutches includes a clutch bearing.
4. A synchronous mechanism as defined in claim 3, wherein said clutch bearings are located at the center of said first and second pulleys.
5. A synchronous mechanism as defined in claim 2, wherein a cable tensioner assembly is provided for adjusting the tension in the first and second cables between the pulleys.
6. A synchronous mechanism as defined in claim 5, wherein said cable tensioner assembly includes first and second pairs of cable pulleys mounted

to a support structure, said first cable running over said first pair of cables pulleys and having opposed ends thereof respectively attached to said first and second pulleys on a first side of said shaft, said second cable running over said second pair of cable pulleys and having opposed ends thereof respectively attached to said first and second pulleys on a second side of said shaft.

7. A synchronous mechanism as defined in claim 6, wherein said support structure is adjustable for varying the tension in the first and second cables.

8. A synchronous mechanism as defined in claim 1, wherein each of said first and second pulleys includes a cam pulley.

9. A synchronous mechanism as defined in claim 1, wherein said shaft is coupled to a resisting mechanism adapted to provide an adjustable opposition to the movement of the shaft in order to vary the effort required to pivot the handlebars.

10. A synchronous mechanism as defined in claim 2, wherein said first and second pulleys are each provided on opposed sides thereof with first and second cable attachments.

11. A synchronous mechanism as defined in claim 1, wherein said first and second pulleys are each provided with an outer lateral mounting surface adapted to be rigidly connected to a hub.

12. An exercise apparatus comprising a system for synchronizing the movement of a pair of limbs, comprising a shaft mounted for rotation about a longitudinal axis thereof, left and right pulleys mounted at opposed end portions of said shaft, left and right exerciser members respectively connected to said left and right pulleys and pivotable therewith about said longitudinal axis, left and

right one-way clutches for respectively transmitting a torque from said left and right pulleys to said shaft in one direction, while allowing said left and right pulleys to rotate freely relative to said shaft when driven in an opposite direction, and a pair of elongated transmission members connected in parallel between said left and right pulleys on opposite sides of said shaft.

13. An exercise apparatus as defined in claim 12, wherein said elongated transmission members include first and second cables.

14. An exercise apparatus as defined in claim 12, wherein each of said right and left one-way clutches includes a clutch bearing.

15. An exercise apparatus as defined in claim 13, wherein a cable tensioner assembly is provided for adjusting the tension in the first and second cables between the left and right pulleys.

16. An exercise as defined in claim 15, wherein said cable tensioner assembly includes first and second pairs of cable pulleys mounted to a support structure, said first cable running over said first pair of cables pulleys and having opposed ends thereof respectively attached to said left and right pulleys on a first side of said shaft, said second cable running over said second pair of cable pulleys and having opposed ends thereof respectively attached to said left and right pulleys on a second side of said shaft.

17. An exercise apparatus as defined in claim 16, wherein said support structure is adjustable for varying the tension in the first and second cables.

18. An exercise apparatus as defined in claim 12, wherein each of said left and right pulleys includes a cam pulley.

19. An exercise apparatus as defined in claim 12, wherein said shaft is coupled to a resisting mechanism adapted to provide an adjustable opposition to the movement of the shaft in order to vary the effort required to pivot the exerciser members.

20. An exercise apparatus as defined in claim 13, wherein said left and right pulleys are each provided on opposed sides thereof with first and second cable attachments.